



**WORK PLAN/
SAMPLING AND ANALYSIS PLAN**

**LOTS 507 THROUGH 512 ON
JEFFERSON AVENUE, WEST ROAD, AND THIRD STREET
TRENTON, MICHIGAN**

for

**DOWNRIVER AREA BROWNFIELD CONSORTIUM
SOUTHGATE, MICHIGAN**

**AKT PEERLESS PROJECT NO. 4104F
SEPTEMBER 26, 2003**

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**WORK PLAN/SAMPLING AND ANALYSIS PLAN
FOR
PARCELS LOCATED ON WEST JEFFERSON,
WEST ROAD, AND THIRD STREET
TRENTON, MICHIGAN**

1.0 INTRODUCTION

Downriver Area Brownfield Consortium (DABC) retained AKT Peerless Environmental Services (AKT Peerless), under the United States Environmental Protection Agency (USEPA) Brownfield Pilot Program, to conduct a Subsurface Investigation of Lots 507 through 512 on Jefferson Avenue, West Road, and Third Street in Trenton, Michigan. See Figure 1 for a topographic site location map. See Figure 2 for a Proposed Sample Location Map.

This Work Plan/Sampling and Analysis Plan (Work Plan/SAP) was developed to describe the field procedures for the subsurface investigation at the subject property. The purpose of this Work Plan/SAP is to document the data gathering and sampling methodologies that will be used during subsurface investigation field activities and the frequency, locations, and rationale for sampling activities. The Work Plan/SAP contains the procedures and protocol necessary to conduct all planned investigation and sampling activities.

2.0 PROPERTY LOCATION/DESCRIPTION

The subject property is located on the southern side of West Road, between Jefferson Avenue and Third Street, and is comprised of six adjoining parcels consisting of approximately 0.0869-acres (Parcel identification numbers 54-015-03-0507-000 through 54-015-03-0512-000) in Trenton, Michigan. The subject property is zoned CBD (Central Business District) and is situated in the northern half (N ½) of Section 19, Township 4 South (T. 4S.), Range 11 East (R. 11E.), Wayne County, Michigan. The subject property is currently owned by City of Trenton. See Figure 1 for a topographic site location map.

2.1 CURRENT USE

The subject property is zoned CBD (Central Business District) and contains two, small, vacant commercial buildings and a clock tower. The building on the western portion of the property is currently used for storage by the City of Trenton. The exterior portions of the property are used as a municipal park.

2.2 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

AKT Peerless completed a Phase I Environmental Site Assessment (ESA) for the subject property on September 23, 2003. Based on the findings of AKT Peerless' Phase I ESA, the following environmental concerns were identified in connection with the subject property:

1. As discussed throughout this report, a filling station was present on the northeastern corner of the subject property from at least 1930 until the late 1970s or early 1980s. Sanborn Maps indicated that nine underground storage tanks (USTs) may have been associated with this filling station. In addition, a gasoline UST was identified near the eastern property boundary in the 1922 Sanborn Fire Insurance Map. Specific information (i.e., size, contents, construction material) and removal records regarding these USTs was not available during this assessment.
2. As discussed in Sections 3.3.2 through 3.3.5, automotive and boat maintenance activities were conducted on the subject property from at least 1922 until the late 1970s. Maintenance activities were conducted in both existing buildings at the property. A paint spray booth was located in the northwestern portion of the existing Pavilion Building during this time.
3. As discussed in Section 4.7, AKT Peerless observed drum rings along the western wall of the Pavilion Building on the western portion of the subject property. In addition, paint staining was observed in and around the washtub in the Pavilion Building. This staining appeared to be related to paint brush-washing activities in this portion of the building.
4. As discussed in Sections 3.2 and 3.3.5, automotive maintenance activities were conducted on the southern adjoining property from at least 1922 until the late 1990s. This site (listed as Progressive Tire) was identified on the "closed" LUST, registered UST, and RCRIS-SQG databases. According to MDEQ file information, impacted soil and groundwater were removed from the site in 1992 during removal of USTs and hydraulic hoists.
5. As discussed in Sections 3.3.1 and 3.3.5, the northeastern adjoining property contained a filling station from at least 1930 until the late 1960s or early 1970s. A filling station may have been present on the eastern adjoining property from at least 1972 until the early 1990s. A machine shop was identified on the northern adjoining property in the 1922 Sanborn Map.

3.0 PURPOSE AND SCOPE

The purpose of AKT Peerless' subsurface investigation is to evaluate the RECs identified in AKT Peerless' September 23, 2003, Phase I ESA. These activities will be conducted to evaluate potential subsurface contamination and potential environmental risks associated with the subject property. AKT Peerless will perform a review of the laboratory analytical results to determine if target parameters are detected above applicable Michigan Department of Environmental Quality (MDEQ) Cleanup Criteria.

Work proposed in the SAP will be conducted not only to maintain environmental liability protection, but also to know what due care response activities (pursuant to Section 20107a of Michigan's NREPA) must be performed to ensure no undue exposure to contamination at the property.

If target parameters are detected above MDEQ Generic Residential Cleanup Criteria, the subject property will meet the definition of a "facility," as defined by of Part 201 of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended. If the subject property is a "facility", AKT Peerless may prepare a State of Michigan Baseline Environmental Assessment to obtain liability exemption for cleanup of existing contamination for a prospective purchaser.

4.0 SUBSURFACE INVESTIGATION FIELD ACTIVITIES

The following field investigative activities will be conducted as part of the subsurface investigation:

- Geophysical investigation
- Soil boring installation and soil sample collection.
- Collection of groundwater sample (if encountered).

5.0 INVESTIGATIVE PROCEDURES

This section presents the procedures and equipment for performing the planned subsurface investigation activities at the subject property. The number of samples, associated chemical analyses, sample containers, preservation, and holding time requirements are presented on Table 4 of the AKT Peerless' Quality Assurance Project Plan (QAPP). Standard forms including soil boring logs, daily field reports, and chains-of-custody are provided in Attachment E of AKT Peerless' QAPP.

5.1 GEOPHYSICAL INVESTIGATION

AKT Peerless will conduct a geophysical survey of the subject property to evaluate the potential presence of abandoned USTs. AKT Peerless will conduct this investigation using an EM-61MK2 metal detector. The EM-61MK2 consists of a 1 by 0.5 meter antenna, a power supply/receiver backpack, and a hand-held data logger. An EM-61MK2 transmits an electromagnetic signal into the ground. When a metallic object is encountered by this electromagnetic signal, it generates a magnetic field, which is detected by the receiver. The EM-61MK2 also transmits an audible signal, which increases pitch and intensity as magnetic return increases.

5.2 SOIL BORINGS AND SOIL SAMPLE COLLECTION

AKT Peerless will retain a drilling contractor to install 4 soil borings at the subject property. The drilling contractor will use a Geoprobe® hydraulic drive/direct push sampler and follow American Society for Testing and Materials publication ASTM D-4700. AKT Peerless will screen all soil samples with a photoionization detector (PID). AKT Peerless anticipates collecting approximately 6 soil samples for laboratory analyses. See Figure 2 for a site map with approximate locations of proposed sampling locations. Table 1 presents the sample and analytical requirements.

5.1.1 Depth of Soil Borings

Soil borings will be drilled to a maximum depth of approximately 20 feet below ground surface (bgs). The Phase I RECs identified the possibility of contamination affecting soils just below the surface. Therefore, three of the four soil borings will only be drilled to 8 feet below the ground surface, unless visual evidence suggests deeper contamination is present. One soil boring will be drilled to a maximum depth of 20 to collect a groundwater sample. This sample will be collected on the southwest portion of the subject property to address an off-site gasoline station.

Groundwater will be collected from this soil boring, if encountered. Soil samples from each soil boring will be collected continuously for field screening and visual characterization from each boring location.

5.1.2 Sample Collection Methodology

Soil samples will be obtained in accordance with AKT Peerless SOP-1 (Rev. 1.0), a copy of which is provided in Attachment C of the QAPP.

5.1.3 Selection of Soil Samples for Analyses

AKT Peerless anticipates submitting up to six soil samples for laboratory analyses based on one or more of the following:

- Known and/or suspected depth of release (e.g., surface stain, etc.)
- Visual identification of soil staining
- Concentrated petroleum based odors
- Elevated PID level reading
- Fill sand to clay interface

Table 1 presents the sample and analytical requirements. In addition to the operating procedures presented in AKT Peerless SOP-1 (Attachment C, QAPP), the following procedures will be followed when collecting soil samples for laboratory analyses:

1. Soil sampling locations will be staked in the field and recorded in a logbook.
2. If concrete is present, coring will be performed through the concrete slab using an electric coring machine.
3. Soil samples will be collected continuously.

4. Soil samples will be selected for laboratory analyses and placed into laboratory-supplied containers.
5. Sample containers will be labeled as described in Section 2.3 of the QAPP.
6. Each sample container will be individually sealed in a plastic bag and placed into a cooler for storage and shipment.
7. Samples will be maintained at approximately 4 ° C during storage and shipment to the laboratory for analyses.
8. Each filled sample cooler will be sealed with an *AKT Peerless Custody Seal* (AKT Peerless Form No. FF-6) prior to shipment to the laboratory.
9. Sampling equipment will be decontaminated in accordance with AKT Peerless SOP-4, presented in Attachment C of the QAPP.
10. Lithologic characteristics (color, texture, grain size and consistency) of the soil at each soil boring location will be recorded on AKT Peerless Form No. FF-4.
11. Soil borings and surface sample locations will be scaled on a site map.

Soil sampling equipment will include the following:

- Health and safety equipment/health and safety plan
- Hand Auger,
- Appropriate field forms, including chains-of-custody,
- Sample labels and custody seals,
- Logbooks, marking pens, overnight courier air bills and pouches,
- PID meter,
- Distilled or deionized water,
- Cooler with ice,
- Laboratory grade detergent, stiff brush, bucket, wash tub,
- Sample containers and packaging material,
- Tape measure,
- Camera and film.

5.2 GROUNDWATER SAMPLE COLLECTION

Groundwater samples will be collected (if encountered) from a maximum of one soil boring.

The sample will be collected from an area that will best characterize the groundwater beneath the property. The groundwater sample will be collected to address the potential off-site source (i.e. the gasoline station) not to necessarily characterize groundwater at the site. If significant soil and groundwater is identified in the field, additional samples may be collected. See Table 1 for the sample collection and analytical program.

5.2.1 Sample Collection Methodology

Groundwater samples will be collected from the upper three feet of the water table in accordance with AKT Peerless SOP-2. See Attachment C of the QAPP for a copy of SOP-2.

5.2.2 Selection of Groundwater Samples for Analyses

Groundwater samples will be collected from the upper three feet of the water table. The following procedures will be followed when collecting the groundwater sample for laboratory analyses:

1. Groundwater sampling locations will be staked in the field and recorded in a logbook.
2. Dedicated/disposable sample tubing will be used to collect each groundwater sample to limit the potential for cross-contamination.
3. Groundwater samples collected for laboratory analyses will be placed into the appropriate sample containers.
4. Sample containers will be labeled as described in Section 2.3 of the QAPP.
5. Samples will be maintained at approximately 4 ° C during storage and shipment to the laboratory for analyses.
6. Groundwater sampling locations will be scaled on a site map.

Groundwater sampling equipment will include the following:

- Health and safety equipment/health and safety plan (Exhibit 2 of the QAPP),
- Peristaltic pump and disposable tubing,
- Disposable plastic bailers,
- Conductivity, pH, and temperature meter(s),
- Appropriate field forms, including chains-of-custody,
- Sample labels and custody seals,
- Logbooks, marking pens, overnight courier air bills and pouches,
- PID meter
- Distilled or deionized water,
- Cooler with ice,
- Sample containers and packaging material,
- Camera and film.

5.2 CHAIN-OF-CUSTODY

Chain-of-custody protocol is necessary to ensure the integrity of samples from the time of collection to data reporting. Chain-of-custody protocols include proper sample labels, sample seals, sample storage, sample shipment, and documentation. Refer to Section 2.3 of AKT Peerless' QAPP for the detailed explanation of sample custody procedures.

5.3 DECONTAMINATION PROCEDURES

5.3.1 Sample Collection Equipment

Soil samples will be collected using dedicated sampling equipment. Refer to AKT Peerless SOP-4 presented as Attachment C of the QAPP for further details on equipment decontamination.

5.3.2 Disposal of Investigation Derived Materials

During the course of the investigation field activities, disposable personal protective equipment (PPE) will be generated. AKT Peerless will dispose this PPE as municipal waste.

5.4 PERSONNEL MONITORING

During subsurface investigation activities, air monitoring will be conducted to ensure that the proper level of PPE is used. During these activities, a PID will be used for periodic evaluation of organic vapor in the breathing zone. The AKT Peerless site health and safety officer (SHSO) will record the time and levels in the appropriate field logbook. Recordings will be taken every 4 hours or more often if field personnel determine it is necessary. The personnel air monitoring conducted at the subject property will be evaluated by the SHSO for use in determining adequate levels of protection for the investigative workers. Additional personnel air monitoring will be implemented if conditions at the subject property warrant. The PID will be operated in accordance with AKT Peerless SOP-5.

5.5 HEALTH AND SAFETY PLAN

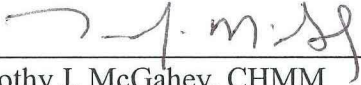
The site specific HASP provides guidelines and procedures to protect the health and safety of personnel conducting field activities. The plan has been developed based on requirements contained in the following regulations and guidance documents:

- 29 CFR 1910.120: *Safety and Health Regulation for General Industry*, Occupational Safety and Health Administration (OSHA), as amended, December 1986.
- *Standard Operating Safety Guides*, U.S. Environmental Protection Agency (EPA), 1992.
- *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, National Institute of Occupational Safety and Health Administration (NIOSH), Publication No. 85-115, October 1985.

AKT PEERLESS ENVIRONMENTAL SERVICES

This Work Plan/SAP is based on information available at the time of development of this plan, and is subject to revision as new data and information on potential health and safety hazards at the subject property becomes available.

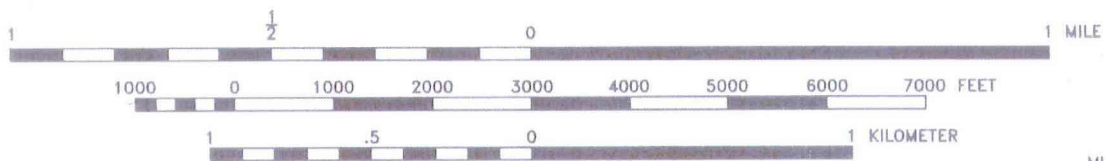
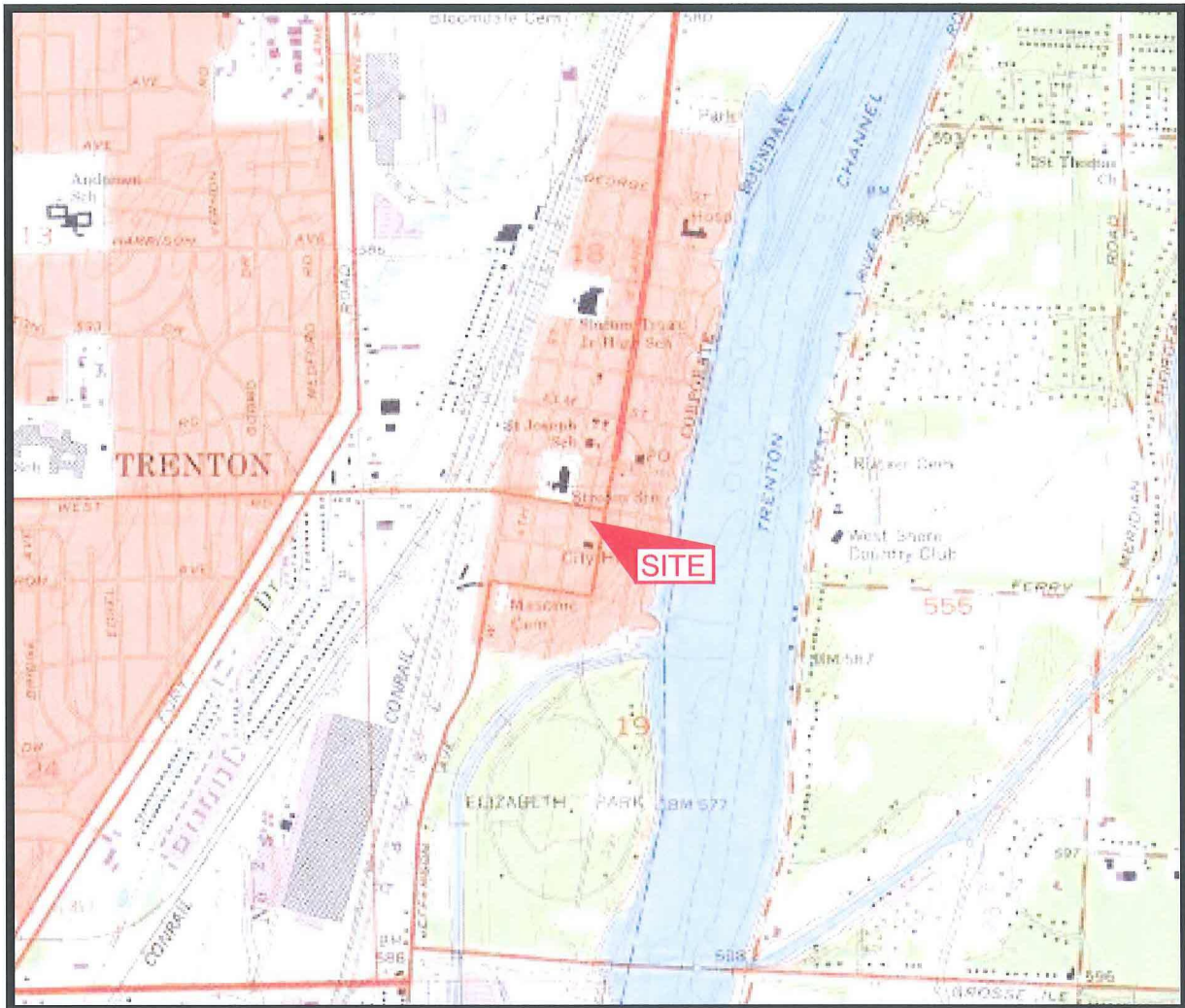
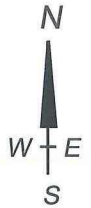
Prepared by:



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Environmental Consultant

FIGURES

WYANDOTTE QUADRANGLE
MICHIGAN - WAYNE COUNTY
7.5 MINUTE SERIES (TOPOGRAPHIC)



CONTOUR INTERVAL 10 FEET
 DATUM IS MEAN SEA LEVEL

IMAGE TAKEN FROM 1967 U.S.G.S. TOPOGRAPHIC MAP
 PHOTOREVISED 1981



AKTPEERLESS
 environmental services

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TOPOGRAPHIC PROPERTY LOCATION MAP
 CITY OF TRENTON
 WEST JEFFERSON AND WEST ROAD
 TRENTON, MICHIGAN
 PROJECT NUMBER: 4104F

DRAWN BY: RT
 DATE: 8/28/03

FIGURE 1

THIRD STREET

WEST ROAD

CLOCK TOWER

JEFFERSON AVENUE

PUBLIC ALLEY

PARKING LOT

PARKING LOT

AKTPEERLESS
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SITE MAP WITH PROPOSED
SAMPLE LOCATIONS
CITY OF TRENTON
JEFFERSON AVE, WEST RD, AND THIRD ST
TRENTON, MICHIGAN
PROJECT NUMBER : 4104F

LEGEND

⊗ = SOIL BORING

DRAWN BY: MR
DATE: 10-20-03

SCALE:
0 20' 40'

FIGURE 2

ATTACHMENT 1

WORK PLAN DESCRIPTION

PARCELS ON WEST JEFFERSON, WEST ROAD, AND THIRD STREET
TRENTON, MICHIGAN
AKT PEERLESS PROJECT NO. 4104F

Based on AKT Peerless' September 2003 Phase I ESA, the following recognized environmental conditions (RECs) were identified in association with the subject property.

- REC 1: Historical use of the property as a filling station (including potential USTs).
- REC 2: Historical use of the property for automotive maintenance.
- REC 3: Staining and drum rings in the Pavilion Building
- REC 4: Historical use of the southern adjoining property for automotive maintenance (former UST and hydraulic hoists)
- REC 5: Historical use of the northern and northeastern adjoining properties as a machine shop and filling station, respectively

A geophysical survey will be conducted on the accessible portions of the subject property to evaluate the potential for abandoned USTs. In addition, the following table summarizes proposed subsurface investigation activities for each REC.

| RECOGNIZED ENVIRONMENTAL CONDITIONS | NUMBER AND MAX. DEPTH OF BORINGS | NUMBER OF SAMPLES AND MATRIX | ANALYTICAL PARAMETERS |
|-------------------------------------|---|------------------------------|---------------------------------|
| # 1 | 5, 20-feet | 5 Soil – shallow | Gasoline parameters |
| | | 5 Soil – deep | Gasoline parameters |
| # 2 | 7, 20-feet | 7 Soil – shallow | Used oil parameters |
| | | 7 Soil – deep | Used oil parameters |
| # 3 | 2, 20-feet | 2 Soil – shallow | VOCs, PNAs, and Michigan metals |
| | | 2 Soil – deep | VOCs and PNAs |
| # 4 | 2, 20-feet | 2 Soil – shallow | Used oil parameters |
| | | 2 Soil – deep | Used oil parameters |
| # 5 | <i>Will be assessed with samples collected for REC #1</i> | | |

If encountered, groundwater samples will be collected in place of deeper soil samples.

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